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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/583,599	05/31/2000	Qing Min Wang	99A209	4043
20411	7590	06/24/2004	EXAMINER	
THE BOC GROUP, INC. 575 MOUNTAIN AVENUE MURRAY HILL, NJ 07974-2064			TRAN, THAO T	
			ART UNIT	PAPER NUMBER

1711

DATE MAILED: 06/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

### Application No.

09/583,599

### Applicant(s)

WANG ET AL.

### Examiner

Thao T. Tran

### Art Unit

1711

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 June 2004 and 14 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8, 11, 16-25, 28 and 33-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8, 11, 16-25, 28 and 33-38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 12/31/03.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

Art Unit: 1711

## **DETAILED ACTION**

### ***Response to Amendment***

1. This is in response to the Amendments received on June 1, 2004 and April 14, 2004.
2. Claims 1-8, 11, 16-25, 28, and 33-38 are currently pending in this application. Claims 9-10, 12-15, 26-27, 29-32, and 39-64 have been canceled.

### ***Claim Objections***

3. Claims 1-8, 11, 16-25, 28, and 33-38 are objected to because of the following informalities: In each of claims 1, 11, 19, 21, 28, and 36, "poly[bis(2-chloroethyl)ether-alt-1,3-bis[3-(dimethylamino)propyl]urea]" should be changed to --poly[bis(2-chloroethyl)ether-alt-1,3-bis[3-(dimethylamino)propyl]]urea--; and "quaternited" should be changed to --quaternized--.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1- are rejected under 35 U.S.C. 103(a) as being unpatentable over King et al. (US Pat. 5,174,886) in view of Scott (US Pat. 4,749,449).

Art Unit: 1711

King teaches a copper electroplating bath, comprising copper sulfate, sulfuric acid, a carrier, a brightener, and a leveler (see abstract; col. 3, ln. 55-57). King further teaches the carrier to be polyethylene and the brightener to be 3-mercapto-1-propanesulfonate (see col. 3, ln. 43-45, ln. 68, bridging col. 4, ln. 1). King also teaches the carrier to be about 0.2 to about 0.4 g/L; the leveler about 0.05 to 0.5 mg/L; and the brightener about 0.05 to about 0.5 mg/L (see col. 3, ln. 53; col. 4, ln. 14-16), which appears to read upon the instantly claimed ranges.

With respect to claims 1 and 21, King further teaches that the choice of brightening and the leveling additives is not critical (see col. 3, ln. 60-61). However, King does not teach the recited levelers or the carrier to be a polysaccharide as recited in the instantly claimed invention.

Scott teaches a copper-plating bath containing a mixture of water-soluble polymers such as polyacrylamides, starch, and cellulose (see col. 17, ln. 34-37; col. 18, ln. 16-29). Scott further teaches that these polymers are used as adjuvants in the metal plating bath (see col. 17, ln. 8-10).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to have employed the water soluble polymers, as taught by Scott, in the copper bath of King, as promoters for the purpose of enhancing the copper plating process.

#### *Allowable Subject Matter*

6. Claims 11, 19, 28, and 36 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter: no prior art has been found to teach, disclose, or fairly suggest an acid copper plating bath

Art Unit: 1711

comprising an organic compound as recited in the instant claims, in combination with all of the other limitations of claim 1 or claim 21.

***Contact Information***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thao T. Tran whose telephone number is 571-272-1080. The examiner can normally be reached on Monday-Friday, from 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Thao Tran*

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June 21, 2004